UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,797	01/15/2004	Lev Borisovich Nachmanson	3382-66933	6509

26119   7590   06/27/2007

KLARQUIST SPARKMAN LLP
121 S.W. SALMON STREET
SUITE 1600
PORTLAND, OR 97204

EXAMINER
SILVER, DAVID

ART UNIT	PAPER NUMBER
2128	

MAIL DATE	DELIVERY MODE
06/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 April 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16 and 18-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16 and 18-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 April 2007* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date *4/11/07*.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

DETAILED ACTION

1. Claims 1-20 were originally presented for examination.

2. Claims 1-20 were rejected.

3. Claim 17 was cancelled and therefore withdrawn from consideration.

4. Claims 1-16 and 18-20 are currently pending in Instant Application.

5. The Instant Application is not currently in condition for allowance.

Priority

6. Priority is not claimed **(Effective Filing: 01/15/2004).**

Information Disclosure Statement

7. The information disclosure statement(s) (IDS) submitted on 4/11/07 is/are in compliance with the

provisions of 37 CFR 1.97. Accordingly, the information disclosure statement(s) is/are being

considered if signed and initialed by the examiner.

Response to Arguments

Response: Drawings

8. **Applicants argue:**

"The Examiner has objected to Figure 14, as, in his characterization, "only what which is old is

illustrated." [Action, ¶6.] However, Figure 14, as recited by its description in the "Brief Description of

the Drawings" is "a block diagram of a distributed computer system implementing the described

technologies." This is reinforced by the description of block 1456, which initially was said to be a

program module with "an implementation." [Application, page 27, line 25.] With this Amendment, the

description of the implementation 1456 has been amended to read "an implementation 1456 which

provides models and test coverage for non-deterministic programming as taught herein." Support for

this amendment can be found in the Specification at page 2, lines 5-6. Similarly, a replacement

Figure 14 has been filed with this amendment. Box 1456 in Replacement Figure 14 now reads "non-

deterministic test coverage implementations." Support for this amendment can be found in the

Specification at page 2, lines 5-6.

As Figure 14 illustrates implementations of the methods and systems taught within the application, applicants respectfully submit that Figure 14 has material that is not old, and so is not prior art. Applicants respectfully request removal of this objection." (Remarks dated 4/11/07: page 8)

9. **Examiner Response:**

Objection has been **withdrawn**.

The drawings submitted on 4/11/07 are **acceptable**.

Response: 35 U.S.C. § 101

10. **Applicants argue:**

10.1   "Applicants respectfully disagree with the Examiner's characterization of the claims and relevant law, and believe that the claims in their previous state satisfied 35 U.S.C. § 101. Nevertheless, applicants have amended the above-rejected claims in an effort to expedite prosecution. Specifically the claim now recites: ,"storing a representation of the created strategies in computer memory." Thus, the represen.tati0n of the created strategies are stored, providing a "useful, tangible output." Applicants respectfully submit that Claim 1, as amended, is directed to statutory subject matter and request that the rejection under 35 U.S.C. § 101 be withdrawn. Claims 2-6 depend on Claim 1 and at least for that reason should also not be subject to a 35 U.S.C. § 101 rejection.

10.2   Applicants respectfully submit that claims 15-16 and 18-20 are currently statutory as they claim functional descriptive material stored on a computer-readable medium." (Remarks: page 9)

11. **Examiner Response:**

11.1   Regarding subsection 1 *supra*, storing the data in memory is inherent as CPUs require that the data be stored in memory for execution. The data stored is not realized outside of the computer system, thus does not provide a concrete, useful, and tangible final result.

Additionally, the claims are drawn to software steps *per se*, which is nonstatutory subject matter.

11.2   Regarding bisection 2 above, the "computer-readable medium" is recited in the preamble. The preamble is not required for the life meaning and vitality of the claim limitations. The claim limitations are drawn solely to instructions. Descriptive matter *per se* that is not stored on a

computer-readable media is not statutory. MPEP 2106.01.I.

11.3   As such, the rejections is **maintained**.

Response: 35 U.S.C. § 112, first paragraph

12. **Applicants argue:**

"The Action rejects claim 1 under the grounds that "the strategies merely increase the probability of executing/reaching the discrete sequences not reached. Therefore, the strategies do not guarantee that the states will be executed ..." [Action, ¶10.]

Applicants respectfully disagree with the examiner's reasoning, but to move the application forward have amended the claim. Claim 1 has been amended to read, in part, "executing the program under test under test conditions using the stored created strategies that cause the program to have a higher probability to execute through states that correspond to the untested program behavior."

Thus, we believe that claim 1 is not subject to a § 112 rejection.

Claim 5.

The Action rejects claim 5 on the grounds that "the claim recites, in part 'the executing program is instrumented with executable code that verifies upon execution that a program state conforms to a state of the graph.'", [Action, ¶10.] However, the Examiner states that "upon execution" means that the program has finished executing, and so the program cannot execute further instructions. [See Action, ¶10.] Applicants respectfully disagree with the examiner's reasoning, but to move the application forward have amended the claim as shown below. [...]" (Remarks: page 11)

13. **Examiner Response:**

Applicants are thanked for amending the claims in order to overcome the 35 U.S.C. § 112 first paragraph rejections. Rejections have been **withdrawn**.

Response: 35 U.S.C. § 112, second paragraph

14. **Applicants argue:**

14.1   "Claim 1 is said to lack antecedent basis for the phrase "the program under test". [Action, ¶ 11.]

The claim now reads in part:

> executing the program under test under test conditions using the stored created strategies that cause the program to have a higher probability to execute through states that correspond to the untested program behavior. [Emphasis added.]

The phrase "the program under test" now has sufficient antecedent basis. Applicants respectfully requests that the rejection be removed.

14.2   [...] Claim 13 is said to lack antecedent basis for the phrase "the created strategies." [Action, ¶ 11.] Applicants respectfully disagree. Claim 13 depends from claim 7. Claim 7 has the language "a strategy calculation program for <u>creating strategies</u> more likely to reach the untouched discrete sequences..." [Emphasis added.] Thus, there is sufficient antecedent basis for the contested claim 13 language.

14.3   The term "instrumented," used in claim 5 is said to be indefinite. [Action, ¶ 12.] The word "instrumented" is used in the application as shown below. [...]"

14.4   "[...] The Action rejects claims 1-6 under 35 U.S.C. § 112 ¶2 for omitting essential steps. [Action, ¶ 13.] Specifically, the step "establishing conditions that cause the program to execute through the states" is said to be missing.

Applicants disagree, but to more quickly move the claims toward patentability have amended the claims to recite, in part: [...]"(Remarks: page 11; emphasis in original)

15. <u>Examiner Response:</u>

15.1   Regarding subsection 1 *supra*, the amendment is **sufficient to overcome** the rejection.

15.2   Regarding subsection 2 *supra*, the amendment is **not** sufficient to overcome the rejection. Specifically, the "for creating strategies ..." merely recites intended use of the calculation program. The program does not actually create strategies. The 35 U.S.C. § 112 second paragraph lack of antecedent basis rejection of claim 13 is **maintained.**

15.3   Regarding subsection 3 above, Applicant's arguments are persuasive. Rejection is **withdrawn.**

15.4   Regarding subsection 4 above, the amendment is **sufficient to overcome** the rejection.

Response: 35 U.S.C. § 102

16. **Background:**

Claims 1-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee et al **(US 5,659,555)**.

17. **Applicants argue:**

17.1   "Lee explicitly states "Because we do not do a reachability computation, we cannot, of course say

absolutely whether a current global state s; can be reached from the previous one s;-I." [Lee, 11:20-

23.] A reachability computation involves, at a minimum, creating a cycle of edges through the graph

that reach each edge in the graph at least once. Then, it can be determined if the global state si can

be reached from the previous one s;-i by examining the cycle of edges through the graph. If a

reachability computation is not performed, then "creating a continuous cycle of edges through the

graph that reaches each edge in the graph at least once" i.e., a step toward a reachability

computation, is explicitly not performed. Lee, further, teaches away from such a continuous cycle. A

reachability computation is not done to "avoid exploding the states." [Lee, 11:18-19.] Thus, Lee

would not "creat[e] a continuous cycle of edges through the graph that reaches each edge in the

graph at least once" to avoid the state explosion problem.

17.2   As further, explicit, teaching away, Lee states: "Computation and traversal of the global FSM are

intractable for most real-life protocols. [Lee, 7:9-11 .]

As Lee does not teach or suggest, at a minimum, '"creating a continuous cycle of edges through the

graph that reaches each edge in the graph at least once" claim 1 is not subject to a 102(b) rejection;

applicants request that the rejection be withdrawn." (Remarks: page 13 to 14)

17.3   Regarding claims 2-14 Applicants present same arguments as above.

18. **Examiner Response:**

18.1   Regarding subsection 1 above, Applicants attention is drawn to the portion of Lee cited by the

Examiner **(col: 12 line: 4-14)**, which recites:

"In the preferred embodiment, a counter is kept of upgraded external input transitions.

If it does not increase for a while then we notice that the test has made no progress.

Special measures have to be taken to break out of this situation. The no progress

problem could be caused by enforcing priority when choosing the next external input

transition to test; the test sequence may <u>trace the composite machine along a **loop**</u>, and

there is no way we can find it directly. One way to break the loop is to relax the priority

of the next transition to test temporarily, i.e., select the next external input transition to

exercise randomly, disregarding classes. After a few iterations, resume normal test

operation." **(col: 12 line: 4-14; emphasis by Examiner)**

The taught "loop" directly correlates to the Applicants' claimed "cycle".

> "Arguments that the alleged anticipatory prior art is nonanalogous art' or teaches away from the invention' or is not recognized as solving the problem solved by the claimed invention, [are] not germane' to a rejection under section 102." Twin Disc, Inc. v. United States, 231 USPQ 417, 424 (Cl. Ct. 1986) (quoting In re Self, 671 F.2d 1344, 213 USPQ 1, 7 (CCPA 1982)). See also State Contracting & Eng 'g Corp. v. Condotte America, Inc., 346 F.3d 1057, 1068, 68 USPQ2d 1481, 1488 (Fed. Cir. 2003) (The question of whether a reference is analogous art is not relevant to whether that reference anticipates. A reference may be directed to an entirely different problem than the one addressed by the inventor, or may be from an entirely different field of endeavor than that of the claimed invention, yet the reference is still anticipatory if it explicitly or inherently discloses every limitation recited in the claims.)."

18.2   Regarding subsection 2 above, Applicants' attention is drawn to MPEP 2131.05, recited above in

part.

Rejections are **maintained**.

19. <u>Applicants argue:</u>

"Lee does not teach or suggest the claim language "instructions for creating a model of program

behavior comprising an abstract state machine with edge transitions; instructions for splitting a the

model of program behavior into sequences of at least two edge transitions ending at non-

deterministic behavior."

19.1   In Lee, programs are modeled by using a random walk where the next input is chosen by

surveying the possible inputs and then choosing the one that has not yet been "well tested." If more

than one input falls in this category, then one is randomly chosen as an input. [See Lee, 8:37-9:32.]

That is, in Lee, there is no two or more step look-ahead. Each input is chosen by looking just one

step ahead. This is different from, and teaches away from "instructions for splitting the model of

program behavior into sequences of at least two edge transitions ending at non-deterministic

behavior."

19.2   Further, the test input sequences in Lee end in two situations: first, "when the resulting output

does not conform to the specification", and second "until the protocol implementation has been

sufficiently tested." [Lee, 8:46-49.] Neither of these mentions non-deterministic behavior as a reason

to split the model of program behavior into sequences. Further, this teaches away from instructions

for splitting the model of program behavior into sequences of at least two edge transitions ending at

non-deterministic behavior; as the output at a non-deterministic sequence is, by definition not

defined by the specification and so cannot conform to it, in the first case, and has nothing to do with

the protocol implementation being sufficiently tested, as in the second case.

Thus, claim 15 is in condition for allowance." (Remarks: page 15-16)

20. **Examiner Response:**

20.1   Regarding subsection 1 above, in response to applicant's argument that the references fail to

show certain features of applicant's invention, it is noted that the features upon which applicant relies

(i.e., two or more step look-ahead) are not recited in the rejected claim(s). Although the claims are

interpreted in light of the specification, limitations from the specification are not read into the claims.

See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

20.2   Regarding subsection 2 above, Applicants' attention is drawn to MPEP 2131.05 regarding

arguments of "teaching away" and their applicability to anticipatory rejections. Further, attention is

drawn to **(col: 12 line: 1-14)**, which discloses splitting (breaking) the loop, which performs a split

between continuing a loop and exiting from it.

Rejections are **maintained.**

Response: Request for Interview

21. **Applicants state:**

"If any issues remain, the Examiner is formally requested to contact the undersigned attorney prior to

issuance of the next Office action in order to arrange a telephonic interview. It is believed that a brief

discussion of the merits of the present application may expedite prosecution. Applicants submit the

foregoing formal Amendment so that the Examiner may fully evaluate Applicants' position, thereby

enabling the interview to be more focused.

This request is being submitted under MPEP § 713.01, which indicates that an interview may be

arranged in advance by a written request."

22. **Examiner Response:**

The interview request is being denied at the time of the Instant Office Action due to time constraints

exerted on the Examiner. However, Applicants are invited to contact the examiner **by phone** at 571-

272-8634 to schedule an interview after final.

Claim Interpretation

23. Limitations drawn to allowing, enabling or making optional a function's performance does not further

limit a claim. As such, any prior art not explicitly prohibiting the performance of the function

inherently anticipates the limitation.

24. As per claims having "for" statements or an equivalent thereof, the language recited following the

"for" is interpreted as reciting functional features and intended use and is thus not limiting.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:
Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

25. Claims 1-6 and 15-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to

non-statutory subject matter.

In this instance, absent an explicit and deliberate definition in the specification that the product includes

an appropriate medium or hardware elements, the claims are directed to software, *per se.* Note

exemplary claim 15 which recites only software instructions. Additionally, software, *per se*, is not

considered concrete (MPEP 2106).

MPEP 2106 recites, in part:
"...USPTO personnel shall review the claim to determine it produces a useful, tangible, and concrete result. In making this determination, the focus is not on whether the steps taken to achieve a particular result are useful, tangible, and concrete, but rather on whether the final result achieved by the claimed invention is "useful, tangible, and concrete.""

(emphasis added)

The method claims do not produce a useful, tangible, and concrete final result. The steps of the method

claims do not produce a useful, tangible, and concrete result. They merely recite a software algorithm,

per se, which, for example, does not display, store, or otherwise provide a useful tangible output. Note

exemplary claim 1 which only recites software steps and does not produce a useful tangible and concrete

final result. See MPEP 2106 [R-5] (partially recited above).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:
The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

26. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being **indefinite** for failing to

particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13, lacks antecedent basis for "the created strategies".

27. Claims not specifically mentioned are rejected by virtue of their dependency.

28. The Applicants are required to fix all other similar occurrences of the above-cited deficiencies.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

29. Claims 1-16, 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee et al **(US**

5,659,555).

Lee discloses: 1. A computerized method of creating test coverage for non-deterministic programs within

a testing environment comprising:

receiving a graph of edges and states representing a program under test **(col: 5 line: 12-17;**

col: 6 line: 8-25);

creating a continuous cycle of edges through the graph that reaches each edge in the graph at

least once **(col: 12 line: 4-14)**;

splitting the continuous cycle into discrete sequences that end at edges reaching non-

deterministic states uncontrollable by the testing environment in the graph **(Fig 5 and its description)**;

executing the program under test **(col: 8 line: 37-51)**;

determining untested program behavior as discrete sequences not reached by the program **(col:**

4 line: 10-25; col: 8 line: 3-10; Fig 5 and descriptions; col: 11 line: 24-34);

creating strategies through the graph that have a higher probability of reaching discrete

sequences not reached by the program **(col: 4 line: 11-23; col: 8 line: 37-51)**;

storing a representation of the created strategies in computer memory; and

executing the program under test under test conditions using the stored created strategies that

cause the program to have a higher probability to execute through states that correspond to the untested

program behavior **(col: 4 line: 11-23; col: 8 line: 37-51)**.

Lee discloses: 2. The method of claim 1 wherein the received graph is a set of states and a set of edges,

and edges are represented as state source-target pairs **(col: 11 line: 24-34 "state pair"; col: 2 line:**

28-36).

Lee discloses: 3. The method of claim 1 wherein the continuous cycle of edges is created from the graph

input using a Chinese Postman tour algorithm **(col: 2 line: 56 to col: 3 line: 9)**.

Lee discloses: 4. The method of claim 1 wherein the graph states are received as a set of deterministic

vertices and a set of non-deterministic vertices **(col: 2 line: 28-36)**.

Lee discloses: 5. The method of claim 1 wherein the executing program is instrumented with executable

code that verifies during execution that a program state conforms to a state of the graph **(col: 2 line:**

28-36; col: 8 line: 37-51).

Lee discloses: 6. The method of claim 1 wherein created strategies are inputs that represent edges

between states of the graph, and test conditions cause the program to enter untested program behavior

(col: 7 line: 30-62; col: 7 line: 60-65; col: 12 line: 4-14).

Lee discloses: 7. A computer system comprising:

memory and a central processing unit executing **(inherent)**, a compiler for compiling an

executable specification into an abstract state machine **(Fig 3 item 305 and Fig. description)**, a

graphing program for creating a continuous cycle touching all edges of the abstract state machine, and

for splitting the continuous cycle into discrete sequences that end at non-deterministic states **(col: 5

line: 12-17; col: 6 line: 8-25; col: 5 line: 8-15; col: 6 line: 26-35)**;

a strategy calculation program **(Fig 5 and description)** for creating strategies more likely to

reach the untouched discrete sequences;

a coverage program for executing a program and verifying that the program executes states

corresponding to those modeled by discrete sequences of the abstract state machine and for determining

untouched discrete sequences and for executing the program according to the created strategies and

verifying whether the program executes states corresponding to the untouched discrete sequences **(col:

4 line: 11-23; col: 8 line: 37-51)**.

Lee discloses: 8. The system of claim 7 wherein a continuous cycle is determined according to a Chinese

Postman algorithm **(col: 2 line: 56 to col: 3 line: 9)**.

Lee discloses: 9. The system of claim 7 wherein discrete sequences comprise beginning states reachable

from edges exiting non-deterministic states **(Fig 5 and its description; col: 12 line: 4-14)**.

Lee discloses: 10. The system of claim 7 wherein an untouched discrete sequence is a state selectable

from a program code executing at a remote computer **(Fig 2 item 7 (and Figure's descriptions)

Application which is coupled to Presentation to Session to Transport to Network from Host A

to Host B and is therefore remote)**.

Lee discloses: 11. The system of claim 7 wherein the abstract state machine comprises a graph of states

and edges **(col: 6 line: 8-25)**.

Lee discloses: 12. The system of claim 11 wherein the strategy calculation program receives the graph

and an edge probability function as input **(Fig 5 and its descriptions)**.

Lee discloses: 13. The system of claim 7 wherein untouched discrete sequences represent less than 10% of the discrete sequences and all untouched discrete sequences are touched when the program is executed according to the created strategies **(col: 8 line: 52 to col: 9 line: 7; a program without untouched discrete sequences anticipates this limitation)**.

Lee discloses: 14. The system of claim 7 wherein not all untouched discrete sequences are verified when · the program is executed according to the created strategies **(col: 4 line: 16)**.

As per claim 15, note the rejection of claims 1 and 7 above. The Instant Claim recites substantially same limitations as the above-rejected claims and therefore rejected under same prior-art teachings.

Lee discloses: 16. The computer-readable medium of claim 15 wherein the modeled program behavior is modeled as an abstract state machine **(Fig 3A and descriptions)**.

Lee discloses: 18. The computer-readable medium of claim 15 wherein the non-deterministic behavior comprises communications with a remote computer **(col: 5 line: 18-25: "An FSM sends a message to other FSMs by means of an "output operation" designated by the "!" symbol. Where, for example, there are two FSMs, machine #1 and machine #2, an output operation in machine #1 is denoted by machine2!msg")**.

Lee discloses: 19. The computer-readable medium of claim 15 wherein determined strategies are determined based on a comparison of edges exiting a deterministic state representing program behavior, and a selected edge has a highest probability of reaching a state representing the identified program behavior **(Fig 5 and its description; col: 12 line: 4-14; col: 6 line: 50-55)**.

Lee discloses: 20. The computer-readable medium of claim 15 wherein the instructions for verifying program behavior cause the program to execute code that verifies that the program is in an expected model state **(col: 2 line: 28-36; col: 8 line: 37-51)**.

Requests for Interview

30. Requests for interview are to be done telephone requests. The Examiner's phone number is 571-272-8634.

Conclusion

31. All claims are rejected.

32. The Instant Application is not currently in condition for allowance.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Silver whose telephone number is (571) 272-8634. The examiner can normally be reached on Monday thru Friday, 10am to 6:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on 571-272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KAMINI SHAH
SUPERVISORY PATENT EXAMINER

David Silver
Patent Examiner